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HEALTH CARE ADMINISTRATION

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DEWITT HEALTH CARE SYSTEM

A GRADUATE MANAGEMENT PROJECT
SUBMITTED TO THE FACULTY OF
BAYLOR UNIVERSITY
IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF
MASTERS OF HEALTH CARE ADMINISTRATION

BY

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ABSTRACT

As part of the vision to become the health care system of choice for Department of Defense (DOD) beneficiaries in Northern Virginia, DeWitt Health Care System (DHCS) has adopted a total quality management (TQM) philosophy. A key component of DHCS's TQM program is the use of process action teams (PATs). This study conducted a survey of former PAT members, analyzed the data, and discusses the results in terms of their effect on PAT success. With PAT success as the dependent variable and nineteen independent variables identified by the literature as contributing to PAT success, regression analysis revealed eight PAT success items accounted for 57.4% of the variance. This difference in R^2 was tested with an F test ($F(6,68)=11.45, p = .0000$). The results indicate PAT success varies as a function of eight specific measures of PAT success. The eight significant variables were: if a team member was serving in an administrative position, the selection of an appropriate project by the team, a commitment from upper management, open dialogue among team members, diagnostic support for the team, physician involvement, regular meetings, and the success of the team leader.

The findings indicate that if these variables are present, the PAT is more likely to be successful. Results of this study may be generalized to other military hospitals for facilitating the success of PATs.

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CHAPTER 1

INTRODUCTION

As part of the vision to become the health care system of choice for Department of Defense (DOD) beneficiaries in Northern Virginia, DeWitt Health Care System (DHCS) has adopted a total quality management (TQM) philosophy. By making TQM one of the strategic goals, the executive committee officially conveyed to the entire organization and community that TQM is not simply the latest craze, but is integral to the continued success of the hospital. More important, it demonstrated the executive committee's unified support on this pivotal issue.

The reasons for implementing TQM are clear: competition is a reality and services are being offered in new, less-costly settings, such as ambulatory clinics, work sites, and homes. Diversification and integration strategies are eliminating historical separations of activities among hospitals, nursing homes, physicians, and other providers. Further, hospitals have been faced with customer dissatisfaction with services, escalating costs, intense competition, and reduced reimbursement for services.

Besieged simultaneously by demand to control costs while improving quality, hospitals and health care systems

have been forced to reevaluate their manner of operation and quality assurance (QA) programs. DHCS is no exception. As a result, DHCS, as well as many other hospitals, have instituted TQM, also known as continuous quality improvement (CQI) and quality improvement (QI), to improve the quality of care and decrease costs.

TQM, though not a new concept, is new to the hospital industry. Initially developed in the United States and later implemented successfully in Japanese manufacturing, this approach to quality management offers considerable promise to health services managers confronted with the challenge of simultaneously increasing the efficiency and effectiveness of their services. Especially significant is the fact that TQM views cost containment and quality enhancement as compatible (Deming 1986).

As a mechanism to focus on quality improvement in a TQM program, many organizations in the industry, service and health care sectors use process action teams (PATs). PATs are a vital component of any successful TQM program (Berry 1991). Thus, the success or failure of a PAT can make a tremendous impact on the overall TQM program at DHCS. If DHCS effectively used PATs, the teams' work could be coordinated to focus efforts on strategic priorities, thereby bringing the organization more in line with its vision statement and the achievement of key business

objectives. This, in turn, could enhance DHCS's ability to remain competitive in the National Capital Region.

Under the concept of TQM, PATs are appointed to address specific operational improvement opportunities and to make distinctive long-term process improvements (Marszalek-Gaucher and Coffey 1990). The teams are multidisciplinary in nature, consisting of employees from several different functional areas--operational (line) departments, as well as support staff, and may include employees from different hierarchical levels within the organization (Juran 1988).

PATs will frequently use such tools as histograms, cause-effect diagrams, run charts, control charts, flow charts and Pareto Charts. PATs are the heart and soul of the quality improvement process and are the mechanism whereby front-line employees have a chance to make process improvements (Marszalek-Gaucher and Coffey 1990).

Berwick, Godfrey, and Roessner (1990) have offered several reasons why PATs can be particularly useful. First, they facilitate dialogue, understanding and knowledge of processes that cross departmental lines. Multi-departmental teams offer the opportunity to improve the whole process rather than just segments of the process. Second, PATs provide a setting for formal training of employees in quality improvement tools. Finally, PATs, through organized team meetings, can keep projects on schedule since members

create deadlines, set agendas, and foster feelings of shared enthusiasm and mutual obligations. In essence, PATs have value because "teams, not individuals, are the fundamental learning unit in modern organizations" (Senge 1990, p. 10).

Conditions Which Prompted the Study

In order to remain competitive in the fast-changing health care market of Northern Virginia and the National Capital Region, DHCS felt it was time for bold new strategies and a commitment to excellence. Coupled with this desire, the executive committee was committed to delivering high quality health care that is also cost-efficient care. As competition tightened and TRICARE loomed on the horizon, DHCS aggressively sought to position itself to effectively compete through restructuring the traditional delivery of services and through the establishment of an organizational culture of TQM.

PAT teams are a critical component of DHCS's TQM program. DHCS has had several PATs chartered by the executive committee while others have originated at the section/departmental level. Some PATs have succeeded while others have failed. Regardless of the origin or effectiveness of the teams, no formal guidance on how to organize and operate a successful PAT was provided. Yet, the literature on PATs suggests there are key elements which must be present if a PAT is to be effective, such as a

commitment from upper management and a structured approach to problem solving. Much of the research to support this position is empirically based and has not been subjected to statistical analysis.

If PATs were organized for greater effectiveness, the potential exists for increased customer satisfaction, as well as cost-of-care savings, and the enhancement of quality. This is particularly important as TRICARE is implemented in the National Capital Region and beneficiaries are given a choice of where to seek care. Further, as the budget tightens, DHCS will be forced to make choices about services offered, personnel hiring actions and where best to allocate resources. If PATs were developed for success, the teams can significantly improve the overall operating efficiency within DHCS and concurrently assist the organization in meeting its vision statement and strategic objectives.

Wright Patterson Medical Center (WPMC) found out early in the TQM implementation process that PATs need to be organized for effectiveness. WPMC senior management encountered problems wherein some PATs totally failed and others failed to achieve lasting improvements. Management thought they would quickly solve all their problems with PATs and have a solution in two weeks (JCAHO 1992). Needless to say, their initial PATs "failed miserably" (Ibid, p.47).

DHCS's PATs need more guidance and concrete data in order to make them effective and successful in problem-solving. This is absolutely crucial because if the PATs fail, they will lose their credibility as an organized forum for improvement. PATs need to be given the tools, knowledge, and ingredients for success, or they will not receive commitment from team members, and will simply become another TQM acronym.

Statement of the Management Problem

The management problem is to determine which factors contribute to PAT success. A tremendous amount of resources are dedicated to PATs, in terms of personnel (human energy), opportunity costs, and equipment. Despite the resources provided to facilitate the PAT process, the results are often less than hoped for. If it were known which factors, or predictors, contribute to PAT success, management could focus resources on these items. This, in turn, will more efficiently utilize scarce resources, while simultaneously producing a more effective outcome.

Review of the Literature

Less than one decade ago, a crisis began to emerge in the health care industry. Nursing school enrollments were down, as were medical school enrollments, and there was a severe shortage of medical technicians. Health care expenditures were rising 12 percent each year, and more than

1,000 hospitals in the country were closing (Kim and Johnson 1994). In response to the crisis at hand, the Joint Commission on Accreditation of Healthcare Organizations (JCAHO) began adjusting its inspection and enforcement procedures to ensure health care organizations were complying with JCAHO standards. Subsequently, JCAHO revamped its standards of quality assurance and joined the industrial sector in endorsing TQM as a means of improving quality while controlling costs (Walton 1990).

TQM is a term given to a philosophy of management that was introduced into the United States business world only as recently as 1980. American statistician Dr. W. Edwards Deming was rediscovered by his own country when an NBC documentary titled *If Japan Can . . . Why Can't We?* was broadcast on June 24, 1980 (Kim and Johnson 1994). A portion of the documentary highlighted Deming's efforts in helping to make Japanese management and products what some would call the best in the world. Deming had been at work with the Japanese management since post-World War II, but had never caught the attention of the businesses in his homeland (Walton 1986).

Among Deming's major characteristics of TQM are a focus on multiple customers, the continuous improvement of quality, the development of quality teams, the statistical monitoring of results, and appropriate management follow-up actions (Fottler, Hernandez, and Joiner 1994). Deming's

concept of TQM requires that change be based on the needs of the customer rather than the values of the provider. Additionally, meaningful participation by all personnel, and a rapid and thoughtful response from top management to suggestions made by participating personnel is essential (Deming 1886). TQM continuously demands new standards. Under TQM, the focus is on improving the system rather than the individual employee. Finally, TQM mandates that there is always room for improvement, no matter how good a service or process is, and that this thinking must pervade the organization at all levels (Ernst 1994).

The basic principles behind TQM were highly regarded by the Japanese and further refined. With the rapid ascendancy of the Japanese in the worldwide economic order, the United States, in the 1980s, revised its thinking about quality and Deming's principles (Kim and Johnson 1994). American companies began to see how a focus on quality could improve operations and, in the long run, a corporation's bottom line (Ernst 1994).

One key principle of TQM is that employees are encouraged to give input into improving the work process. Employees should also be able to offer constructive input on the TQM process itself (Kerr 1993). Employee involvement is one approach to improving quality and productivity with cooperative relationships, open communication, and group problem solving and decision making. This approach received

substantial credit for contributing to quality and productivity improvement in a number of countries, especially in Japan (Aubrey and Felkins 1988).

Participation and employee involvement have also been successful in the United States in both manufacturing and service industries.

The participative process may be embodied in several types of employee groups, such as PATs or quality improvement teams. It is estimated that in 1988 there were approximately 200,000 PATs in the United States and several million operating worldwide (Ibid). Participation and employee involvement are relatively new techniques in the United States, bringing substantial opportunities for improvement and innovation by effectively increasing productivity and quality as well as providing greater cost reduction and improved work satisfaction (Schmidt, Trumbo, and Johnson 1992). This is accomplished through the projects the quality teams complete and through the integration of the philosophy into each person's day-to-day job, thus helping to increase overall quality and productivity in a highly competitive marketplace (Ibid). Moreover, Deming, Juran, and Crosby advocate getting employees involved in the quality improvement process (Rakich, Longest, and Darr 1994).

The literature indicates that in order for PATs to be successful several key factors must be present. One of the

most significant factors which contributes to PAT success is a commitment from upper management. Marszalek-Gaucher and Coffey (1990) believe that leadership's commitment cannot be over emphasized. This element is illustrated by the fact that the eventual success of WPMC's use of PATs was due in part to the strong commitment of senior management (JCAHO 1992). Commitment from upper management is essential because it reinforces the team's priorities, provides resources for the team's actions, and shows team members their efforts are valued by the organization's leaders.

Another factor which the literature indicates as crucial to the success of a PAT is education in TQM and TQM tools. Marszalek-Gaucher and Coffey (1990) advocate training targeted to statistical tools and techniques be provided for PATs. This is needed to help team members use statistically oriented problem-solving to improve work processes. Juran (1988) states that "the concept here is to employ the tools of statistics to solve quality problems."

Berry (1991, p. 72) strongly emphasizes that team members must be "trained, trained, trained, and then retrained." Furthermore, training does not necessarily mean a few days in a classroom, but rather a continuous learning process spread out over time (Johnson 1993). In fact, at WPMC, PATs spend the first two meetings on training: learning team skills, TQM tools, meeting management

techniques, and the FOCUS-PDCA (see Appendix 1) process improvement approach (JCAHO 1992).

The use of a facilitator is also a key contributor to PAT success. "In the absence of a skilled facilitator, our habits of thought continually pull us toward discussion and away from dialogue about the subject at hand" (Senge 1990, p.246). Berry (1991) states that PATs should function with the advice of a specially trained team facilitator to achieve better results. The facilitator is "an internal quality specialist who serves as a consultant to several quality improvement team leaders" (Ibid., p. 57).

A good facilitator should have strong knowledge of the problem-solving process and tools and possess well-developed leadership, communications, and group dynamic skills (Berry 1991). Further, the facilitator is instrumental in explaining the organization's approach to quality improvement, assisting in team building and the resolution of human relations problems among team members, and in helping the team avoid a poor choice of projects (Juran 1988).

Facilitators are instrumental in keeping teams on track, minimizing wasted time and maximizing team results (Berry 1991). The facilitator's chief responsibilities are to keep the discussion focused and moving along, intervene if the discussion becomes fragmented or tangential, prevent

anyone from dominating or being overlooked, and bring discussions to a close (Scholtes 1988).

Leadership is a significant determinant of PAT success. The leader guides the team in its responsibility of carrying out the project. Successful leadership requires knowledge of the project area and skills in fostering cooperation among team members from several functional areas. It is often useful for the team chairperson to come from the organizational unit most impacted by the problem (Juran 1988). The team leader manages the team, sets up the meetings, handles or assigns administrative details, orchestrates all team activities, and oversees preparation of reports and presentations (Scholtes 1988). Team leaders should also be thoroughly familiar with the process being studied (Ishikawa 1985).

Group size has been found to be relevant to PAT success. The PAT should consist of six to eight persons drawn from multiple departments (Juran 1988). Marszalek-Gaucher and Coffey (1990) advise against teams larger than ten or twelve people. If information is needed that is not available from within the team, outside sources can provide it (Juran 1988). Ishikawa (1985) found that the number of people in a given PAT must be limited to ten or fewer. When the number is too large, participatory elements of the PAT activities suffer (Ibid). Although Berry (1991) recommends teams that consist of from five to seven people, a decision

was made to use Marszalek-Gaucher and Coffey's guideline because of the intra- and inter-departmental relationships inherent in most processes in the DHCS.

PATs require cross-functional representation. To improve a process, it is necessary to draw upon the skills and knowledge of the group involved in the total process. PATs should be composed of vertical and horizontal cross sections of people (Marszalek-Gaucher and Coffey 1990). This approach is compatible with the reality that virtually all major chronic quality problems are multi-departmental in scope. For habitual problems, the teams are usually cross-functional and consist of middle management, professional, and work force personnel (Juran 1988). Cross-functional PATs extend the horizons of managers and employees who previously understood only their own local segment of the process involved (Berwick, Godfrey, and Roessner 1990).

The value of visible participation of executives has been repeatedly noted in the literature as a key ingredient in PAT success. Berwick, Godfrey, and Roessner (1990) found that participation from top leaders eased implementation of PAT solutions. The visible presence of top organizational leaders in a regular role includes either reviewing the team's progress or actually participating on a team. There appears to be no effective substitute for the time of top leaders (Ibid). Berry (1991) also agrees that leaders must be visible and supportive with regard to PATs. To remain

competitive in quality and to reduce the cost of poor quality requires the participation of all members of the management team (Juran 1988).

Berwick, Godfrey, and Roessner (1990) list the regularity of meetings as an important determinant of PAT success. This is necessary to ensure continuity of the project and to keep the team on schedule. Irregular meetings may suggest a lack of commitment on the part of members or that the problem is not important enough to warrant regular meetings.

Open dialogue among team members is another variable the literature suggests as a key to PAT success. Creech (1994) found that in order for PATs to be effective, there must be unfettered communication. Further, there must be a climate of openness that permits free expression of ideas and the focus must be on solutions rather than on fault finding (Rakich, Longest, and Darr 1994). In a PAT, different views are presented which can contribute to useful analysis of the whole process. Successful results cannot be achieved if members feel stifled or unable to state what they truly believe.

A process owner on the team also contributes to a PAT accomplishing its mission. A process owner is critical both in terms of instituting effective remedies and in maintaining quality control. The designation of a process owner may be logically indicated by the structure of the

organization (for example, the director of admissions usually owns the admissions process), or by the nature of the process itself (for example, the emergency room nursing director may be best situated to oversee the emergency room patient flow process, even though many important people in that process do not report formally to him or her) (Berwick, Godfrey, and Roessner 1990).

A process owner is one who can exercise the authority to coordinate improvement and quality control efforts. Complex processes, crossing departmental and organizational boundaries, often lack a single manager who is fully cognizant of the whole process. The process owner is an individual who can serve as organizational eyes and ears on the whole process and can exercise the authority to convene and coordinate improvement and quality control efforts (Ibid). When a process owner is identified, improvement has a better chance (Berry 1991).

Another crucial variable of PAT success is the assignment of team members who have a real stake in finding the right solution. PAT members should be those closest to the problem, so that they have a vested interest in finding the right solution (Ibid). These members will have an incentive to implement the chosen solution and see that it is sustained over time. In the long-term it will simplify their own work life (Ibid).

The literature indicates a structured problem solving approach is crucial to PAT success. Hospital administrators at WPMC armed their teams with a standardized approach to problem-solving after realizing that PATs must utilize a structured problem-solving process (JCAHO 1992). Berry (1991) also recommends a structured problem-solving process which serves to keep the group's efforts focused and to function as a guide. Ishikawa (1985) found that a structured problem solving approach is extremely important to PAT success. Through the structured process, the PAT can concretely study the methods of reaching goals while solving problems. There are several approaches to problem-solving. Although there is no one correct procedure, it is very important for PATs to choose a procedure or method to serve as a template for their problem-solving journey.

The selection of an appropriate project is another determinant of PAT success. A successful project is one form of confirmation to the project team members that the improvement process does lead to useful results (Juran 1988). In contrast, if the project fails, the failure is a source of discouragement and of reduced confidence in the organization (Ibid). If a poor project is selected, the team may become frustrated, demoralized and ineffective (Berry 1991). Such discouragement and reduced confidence becomes public knowledge and thereby impacts the organization beyond the PAT directly involved.

Sometimes projects are too broad, data is unavailable, or the problem cannot be measured. According to Juran (1988) ideal projects should be ones which deal with chronic problems (i.e., one which has been awaiting solution for a long time) and that are feasible (e.g., have a good likelihood of resulting in a successful conclusion within a few months). The project should be significant, the end result should be sufficiently useful to merit attention and recognition; and the results should be measurable, in money as well as in technical progress. The project should serve as a learning experience for the process of problem solving. Choosing the right project can be the catalyst for doing more of the same. The publicity given to the successful project conveys this stimulus to others in the organization.

The availability of one or two statistical "wizards" to support the PAT is integral to the team's mission accomplishment (Berry 1991). Experts can be found in the Resource Management Division, Information Management Division, Clinical Investigation Division, and the Managed Care Division. Statistical experts can assist team members with TQM tools, data gathering, and analysis of findings. One example of strong diagnostic support that produced highly successful PATs is WPMC. WPMC's Management Information Systems Department serves as consultants to PATs and assists team members in determining what types of information they may need (JCAHO 1992).

Recognition or special thanks for the team is fundamental to PAT success. The recognition given to PAT activities can be the single most significant factor for sustaining momentum and enthusiasm in members (Aubrey and Felkins 1988). Berry (1991) strongly recommends special thanks and recognition when a team completes a project, even if it falls short of expectations. PAT recognition is extremely important if success is to continue. It reinforces team activities, a crucial concept. Moreover, it precludes rewarding and recognizing some individuals while ignoring the contributions of others (Johnson 1993).

Prompt recognition or rewards are important for success. Recognition or rewards not promptly awarded lose effectiveness. People forget the reason for the recognition. Teams lose interest when anticipated recognition is not forthcoming. Recognition to successful teams can be great motivators to other teams, therefore it is important to cash in on this benefit early (Ibid.)

PATs can be incentivized through tangible as well as intangible rewards, such as praise and public recognition (Griffith 1992). Publicizing teams' efforts is of equal importance to offering rewards. Not only does this encourage others to become team members, but it also shows hospital personnel the real improvements and benefits made by PATs. There is little incentive to continue the extra effort required to improve performance if there is no reward

or recognition. Celebration is a key method of recognizing the work of PATs. This was clearly evident at WPMC. The hospital conducted a TQM Sharing Day where PATs presented their stories in the hospital auditorium. PATs also set up storyboards in hallways for the staff to look at (JCAHO 1992). Not only does this kind of celebration make team members feel good about the work they have done, but it also encourages others to become involved in PATs and communicates to the entire organization that the teams are truly a mechanism for achieving lasting improvement.

Financial support to pursue the project and implement it is indispensable to the success of the PAT. PATs may need financial support to pursue their projects and if red tape ties them up, they may drop all efforts or simply give up (Berry 1991). Today, organizations must have physical and financial resources as well as flexibility in adapting to change, if PATs are to succeed (Aubrey and Felkins 1988).

Solutions generated by the team rather than solutions presented by management are another factor which contributes to PAT success. With the best intentions in mind, managers will often propose their solution right away when they hear of a problem (Berry 1991). This must be avoided because team members will tend to use these solutions as their own in order to please management. This does not mean management should totally disassociate themselves from PATs,

but they should always remember to offer solutions or recommendations in a nondirective manner (Ibid).

A communications and awareness strategy of TQM has also been attributed to PAT success. The principles of TQM are really pretty simple, but introducing TQM, building it, making it work and sustaining it is not simple at all (Schmidt, Trumbo and Johnson 1992). As a result, in the beginning, more people will be observing from the sidelines rather than playing in the game (Berry 1991). PATs plant the seeds of TQM and CQI in the organization (Scholtes 1988). Therefore, it is essential to keep everyone aware of the progress, improvements and benefits of TQM. This lack of awareness can be especially devastating because people are already racked with anxiety due to all the change that is taking place within the organization. Berry recommends a communications and awareness strategy that "utilizes the most effective and trusted communications channels to explain and to keep people informed as to TQM's progress and future direction" (Berry 1991, p. 42).

Lastly, physician involvement has been noted as being crucial to PAT success in health care organizations. Physicians are the central component of any hospital and are vital to most every process which occurs in the organization. WPMC has recognized this fact and strongly believes physicians should be involved with PATs. Most of WPMC's PATs included physicians. This has had a monumental

impact on the effectiveness of these teams (JCAHO 1992). Physicians skilled in the use of process quality control methods must be key players in any TQM program (Sloan and Chmel 1991). This factor, coupled with the ones listed above, clearly place a PAT in the best position for success. Table 1 depicts the nineteen variables noted in the literature as contributing to PAT success.

TABLE 1

VARIABLES INDICATED BY THE LITERATURE AS
CONTRIBUTING TO PAT SUCCESS

Variable	Literature Source
Commitment from upper management	Berry, Berwick et al, Creech, Deming, JCAHO, Johnson, Juran, Marszalet et al, Mozena & Anderson, Schmidt et at, Sloan & Chmel
Education in TQM and TQM tools	Berry, Berwick et al, Creech, Deming, JCAHO, Johnson, Juran, Marszalek et at, Melan, Mozena & Anderson, Sloan & Chmel
Team facilitator	Berry, Creech, Juran, Mozena & Anderson, Senge, Scholtes
Team leader	Berry, Creech, Ishikawa, Johnson, Juran, Scholtes
Team size less than 12 members	Berry, Ishikawa, Johnson, Juran, Marszalek et at
Cross functional team	Berwick et al, Deming, Juran, Marszalek et al, Melan, Mozena & Anderson, Sloan & Chmel
Visible presence of top leaders	Berry, Berwick et al, Deming, Johnson, Juran, Schmidt et at, Sloan & Chmel
Regularity of meetings	Berwick et al, Deming, Johnson, Juran, Schmidt et at
Open dialogue of team members	Berwick et al, Creech, Deming, Johnson, Juran, Melan, Rakich et at, Schmidt et at, Senge
Process owner	Berry, Berwick et al, Creech, Johnson, Melan, Mozena & Anderson, Sloan & Chmel
Team members who have a stake in the finding the right solution	Berry, Creech, Deming, Johnson, Juran, Mozena & Anderson,
Structured problem solving process	Berry, Berwick et al, Creech, Deming, Ishikawa, JCAHO, Johnson, Juran, Mozena & Anderson, Sloan & Chmel, Schmidt et at
Selecting an appropriate project	Berry, Deming, Juran, Melan, Mozena & Anderson, Schmidt et at
Availability of "statistical wizards" or diagnostic support	Berry, Berwick et al, Deming, Juran, JCAHO, Johnson, Melan, Mozena & Anderson, Schmidt et at, Sloan & Chmel
Special thanks and recognition	Aubrey et al, Berry, Creech, Johnson, Juran, Melan, Schmidt et at
Financial support	Aubrey et al, Berry, Creech, Johnson, Juran, Melan, Schmidt et at
Solutions generated by the team	Berry, Deming, Johnson, Juran, Melan, Schmidt et at
A communications and awareness strategy	Berry, Deming, Juran, Melan, Scholtes, Schmidt et at
Physician Involvement	Berwick et al, JCAHO, Mozena & Anderson, Schmidt et at, Sloan & Chmel

Purpose of the Study

The purpose of the study was to conduct a survey of former PAT members, analyze the data, and discuss the results in terms of their effect on PAT success. It is important to note the opinions of success or failure of PATs were limited to the members of PATs only.

The hypothesis underlying this project is that PAT success is influenced by the nineteen independent variables outlined in the literature review and summarized in Table 1. The null and alternate hypotheses are described in scientific notation below:

$$H_0: Y=f (x_1 + \dots + x_{19})$$

$$H_a: Y \neq f (x_1 + \dots + x_{19})$$

The success or failure of PATs will have a major impact on DHCS because they are highly visible efforts. DHCS must be able to clearly define the elements that contribute to a successful PAT in order for current and future PATs to be effective. If this is not accomplished, PATs could be substantially less effective and contribute to the waste of resources, both in terms of valuable personnel time spent in the PAT, and facility resources allocated to supporting PATs. If PATs endeavors are ineffective, the

result could be a demoralized team, wasted man-hours, and lost credibility for the TQM program. Conversely, if PATs were organized for greater effectiveness, the results of the teams can be coordinated to focus organizational efforts on strategic priorities thereby assisting DHCS in meeting its vision statement and the achievement of key business objectives.

CHAPTER 2

Method and Procedures

Subjects consisted of 117 former PAT members in the DHCS who were indicated by the TQM Office to have participated on at least one PAT and who were still assigned to the DHCS. Subjects included officers, enlisted and civilian employees of the DHCS. Both genders were represented and the age of the subjects ranged from twenty-four to sixty. The subjects represent a sample drawn from the population of all past and present employees of the DHCS who served on a PAT. The survey instrument used was a questionnaire designed to measure perceptions of PAT success (see Appendix 2). The survey instrument, which had previously been demonstrated to be valid using Cronbach's Coefficient Alpha in a similar study at Madigan Army Medical Center (MAMC) (Oyadomari 1993), was designed to assess PAT members' demographic information, perceptions of PAT success, and perceptions of factors contributing to PAT success.

The questionnaire is divided into two sections. The first section consists of nine background questions: five of the questions were measured dichotomously; two were

measured on a continuous scale; and the remaining two questions were measured on a Likert seven-point scale ranging from one being "extremely unsuccessful," to seven being "extremely successful." The respondent's rating of PAT success was included in this section and was measured on the Likert scale.

The second section of the questionnaire consists of twenty-one questions related to PAT success. Six of the questions were measured dichotomously, while fifteen were measured on a Likert seven-point scale. Table 2 depicts the dichotomous variables while table 3 offers a representation of variables which were measured on the Likert scale.

TABLE 2
SURVEY VARIABLES MEASURED DICHOTOMOUSLY

Variable	Coding System
Administrative position	Code 1 if in an administrative position, 0 otherwise
Bachelor's degree	Code 1 if highest educational level attained, 0 otherwise
Cross functional team membership	Code 1 if team was cross functional, 0 otherwise
Doctorate degree	Code 1 if highest educational level attained, 0 otherwise
Gender	Code 1 if male, 0 otherwise
High school degree	Code 1 if highest educational level attained, 0 otherwise
Master's degree	Code 1 if highest educational level attained, 0 otherwise
Management/supervisory position	Code 1 if in a management or supervisory position, 0 otherwise
Less than 12 members on the PAT	Code 1 if less than 12 members on PAT, 0 otherwise
Military	Code 1 if in the military, 0 otherwise
Nursing position	Code 1 if in a nursing position, 0 otherwise
Other paraprofessional position	Code 1 if in a other paraprofessional position, 0 otherwise
Other professional	Code 1 if in a other professional position, 0 otherwise
Physician	Code 1 if a physician, 0 otherwise
Some graduate work	Code 1 if highest educational level attained, 0 otherwise
Structured problem solving process	Code 1 if a struct. prob. solving process was used, 0 otherwise
Use of a team leader	Code 1 if PAT had a team leader, 0 otherwise
Use of a facilitator	Code 1 if PAT had a facilitator, 0 otherwise
Visibility of top management	Code 1 if top management was visible, 0 otherwise

TABLE 3
SURVEY VARIABLES MEASURED ON A LIKERT SCALE

Variable	Coding System
Appropriate Project	Range: 1=extremely inappropriate to 7=extremely appropriate
Commitment from upper management	Range: 1=extremely noncommittal to 7=extremely committed
Diagnostic Support	Range: 1=extremely low amount to 7=extremely high amount
Physician involvement	Range: 1=extremely low amount to 7=extremely high amount
Education in TQM	Range: 1=extremely low amount to 7=extremely high amount
Experience in TQM	Range: 1=extremely low amount to 7=extremely high amount
Facilitator success	Range: 1=extremely unsuccessful to 7=extremely successful
Financial support	Range: 1=extremely low amount to 7=extremely high amount
High stake in outcome	Range: 1=extremely low 7=extremely high
Management interference	Range: 1=extremely low amount to 7=extremely high amount
Open dialogue among PAT	Range: 1=extremely closed to 7=extremely open
Others informed of PAT progress	Range: 1=extremely low amount to 7=extremely high amount
Ownership of process	Range: 1=extremely low amount to 7=extremely high amount
Recognition received from PAT participation	Range: 1=extremely low amount to 7=extremely high amount
Regular PAT meetings	Range: 1=extremely irregular to 7=extremely regular
PAT was successful in accomplishing mission	Range: 1=extremely unsuccessful to 7=extremely successful
Success of team leader	Range: 1=extremely unsuccessful to 7=extremely successful

To assess PAT members' perceptions of PAT success, a survey instrument was hand-delivered to each of the 117 DHCS staff members who were indicated by the TQM Office to have participated on a PAT. The procedure of hand-delivering the survey was applied in order to emphasize the importance of the study. Each survey included a cover letter from the commander encouraging participation in the study. The cover letter also notified participants of the purpose of the study, that participation was voluntary, and that every effort would be made to protect anonymity of the subjects' responses (see Appendix 3). Further, the cover letter served to show the command's support of the study as well as it's commitment to TQM within the organization.

The dependent variable examined was a Likert scale measure of PAT members' perceptions of PAT success. Independent variables included demographic factors and the nineteen variables the literature indicated as contributing to PAT success. In order to identify significant relationships among the dependent and independent variables, the data were entered into one file and a zero-order correlation matrix was developed. The correlation matrix provided indicators of significant correlation between the nineteen independent variables and the dependent variable. Multiple linear regression was used to develop a regression equation for predictors of PAT success.

Validity was established through criterion and construct validity. The premise behind the establishment of validity is to determine whether or not the items have measured what they were intended to measure. Criterion validity was established through the use of a zero-order correlation coefficient matrix. In this study, success is a variable that can be measured according to its varying degrees (seven-point scale). If an independent variable correlates with the varying degrees of PAT success, then validity can be established because this independent variable is now a predictor of PAT success.

Cronbach's coefficient alpha was used to assess the reliability, or internal consistency, of the survey instrument. An instrument is reliable to the degree that it supplies consistent results. Reliability coefficients range from 0 (no reliability) to 1 (perfect reliability). Ideally, Cronbach's coefficient alpha should be at least .70 (Soeken 1985).

The reliability of the survey instrument was also demonstrated through testing in the MAMC study. In the MAMC study, Cronbach's coefficient alpha was computed to be .59. This result indicates that the survey instrument was borderline in meeting reliability standards; however, the low reliability measure was attributed to differences among respondents rather than among the test items themselves (Oyadomari 1993).

Participants were made aware of their right to refrain from participating in the study. Additionally, no names, social security numbers, or other type of identifying information was included in the questionnaire. Every effort was made to protect the anonymity of the subjects.

CHAPTER 3

RESULTS

Seventy-seven of the 117 survey instruments distributed were returned, for a return rate of 66 percent. The return rate was more than adequate which may be attributed to two factors persuading people to participate in the survey: the first is that the survey instruments were hand-delivered; the second is that the DHCS Commander's cover letter, which accompanied each survey instrument, emphasized his personal support of the project and the importance of the survey.

Multiple linear regression produced the following equation for prediction of PAT success:
$$\text{PAT success} = -0.32 + 0.91 (\text{respondent serving in an administrative position}) + 0.11 (\text{appropriate project selected}) + 0.12 (\text{commitment from upper management}) + 0.48 (\text{open dialogue among the PAT}) + 0.02 (\text{diagnostic support}) + 0.12 (\text{physician involvement}) + 0.02 (\text{regular meetings}) + 0.22 (\text{team leader success}).$$
 The $F(6,68)$ ratio of 11.45 was statistically significant at the $p = .0000$ level. The multiple R was 0.75, with $R^2 = 0.574$. The R^2 of 0.574 indicates that 57.4% of the variance in PAT success was accounted for by

variance in the independent variables in the regression equation. The significant F ratio of 11.45 (p = .0000) and the R² of 0.574 indicates that the regression equation is a powerful tool for the prediction of PAT success. Table 4 provides the descriptive statistics derived from the sample of seventy-seven returned survey instruments.

TABLE 4
DESCRIPTIVE STATISTICS

Variable	Mean	Standard Deviation
Commitment from upper management**	5.21	1.1
Education in TQM**	4.2	1.58
Use of a facilitator*	0.755	0.43
Facilitator success**	4.36	1.44
Use of a team leader*	0.888	0.32
Success of team leader**	4.75	1.53
Less than 12 members on the PAT*	0.844	0.37
Cross functional team*	0.866	0.35
Visibility of top management*	0.4	0.49
Regular PAT meetings**	4.39	1.51
Open dialogue among PAT**	5.47	0.91
Ownership of process**	4.57	0.91
High stake in outcome**	5.01	1.53
Structured problem solving*	0.655	0.48
Selected an appropriate project**	5.7	1.18
Diagnostic support**	3.35	1.6
Recognition received**	2.62	1.61
Financial support**	2.51	2.77
Management interference**	2.35	1.64
Other's informed of PAT progress**	3.61	1.71
Physician involvement**	3.23	1.83
Experience in TQM**	4.81	1.24
PAT was successful in mission**	4.88	1.4
Administrative position*	0.277	0.45
Physician*	0.122	0.32
Nursing position*	0.344	0.48
Other professional*	0.211	0.41
Other paraprofessional*	0.066	0.25
High school degree*	0.188	0.39
Bachelor's degree*	0.299	0.45
Some graduate work*	0.1	0.31
Master's degree*	0.299	0.45
Doctorate degree*	0.144	0.35
Management/supervisory position*	0.744	0.52
Military*	0.6	0.49
Gender*	0.455	0.5
Age***	40.31	7.81
Years at DHCS***	4.71	6.04

Note: n=77; *=dichotomous variable; **=Likert scale variable; ***=continuous variable.

Cronbach's coefficient alpha was used to assess the reliability of the survey instrument for the nineteen variables indicated by the literature as contributing to PAT success. Cronbach's coefficient alpha was computed to be .72.

Based on the zero-order correlations and inferential statistics, evidence supports that PAT success is influenced by eight distinct factors. These factors are: if a respondent was serving in an administrative position, the selection of an appropriate project by the team, commitment from upper management, open dialogue among team members, diagnostic support, physician involvement, regular meetings, and the success of the team leader. Therefore, the null hypothesis is rejected in favor of the alternate hypothesis.

CHAPTER 4

DISCUSSION

Since this study replicated a similar study conducted at MAMC it is important look at items which were found to be significant in both studies. Table 5 offers a summarization of these variables.

TABLE 5

A COMPARISON OF SIGNIFICANT VARIABLES FOUND
IN THE MAMC STUDY AND THE DHCS STUDY

MAMC		DHCS	
Variable	r	Variable	r
Structured problem solving process	.49	Team member in an admin position	-.35
Appropriate subject matter	.44	Selection of appropriate project	.11
Commitment from upper management	.38	Commitment from upper management	.12
Others informed of PAT progress	.46	Open dialogue among team members	.48
		Diagnostic support	.02
		Physician involvement	.12
		Regular meetings	.02
		Success of team leader	.22

N=28

N=77

Source: Oyadomari, Vicki. 1993. Process Action Teams-Ingredients for Success. Master of Arts Graduate Management Project. Fort Sam Houston, TX: U.S. Army-Baylor University.

The results of this study suggest PAT success can be influenced by eight distinct variables which are: a team member serving in an administrative position, the selection of an appropriate project by the team, a commitment from upper management, open dialogue among team members, diagnostic support for the team, physician involvement, regular meetings, and the success of the team leader. The findings indicate that if these variables are present, the PAT is more likely to be successful.

The background variable of a respondent serving in an administrative position had a significant impact on the perceived success of a PAT, displaying a significant negative correlation of $r = -.35$ (correlating PAT success with administrative position). This significant negative correlation may be due to one of two reasons: either administrative people serving on a PAT gave the team a greater probability that it would not be successful; or, perhaps more probable, that administrative people generally were more "disappointed" with the results of the PAT than were their non-administrative counterparts. In addition, respondents serving in an administrative position may have received more training and education on TQM and, therefore, may have had different expectations of success.

Alexander et al (1996) also found that occupation displayed a negative and statistically significant correlation with team members' assessment of success

($r = -0.38$ at the $p \leq .05$ level). Different occupations represent a source of potential difference in values, norms, and expectations regarding group participation and behavior. Moreover, because both occupational experience and training are likely to promote different job values or different ways of viewing patient care, such differences are likely to promote conflict, problems with communication, and lack of cohesiveness in the work group setting (Ibid). These factors may, in part, explain why the significant negative correlation resulted.

Alexander et al (1996) cautions that one should not conclude from these results that highly diverse occupational teams are less effective. Heterogeneous work groups may appear to both outside observers and inside participants not to be cohesive, to be fraught with internal conflict, and to require more time to reach decisions. However, the same qualities that make heterogeneous teams so discordant may create very positive outcomes. For example, diverse groups have been shown to be more likely to produce innovative solutions to problems, to produce non-obvious alternatives, and to increase the chances of coming up with the right answer to complex issues (Ibid). Therefore, managers should not be dissuaded by the perceptions of failure reported by administrative participants on PATs and should instead focus on the performance of the PAT.

The selection of an appropriate project by the team also proved to be a determinant of PAT success, displaying a significant positive correlation ($\underline{r}=.11$). Oyadomari (1993) also found this variable to be significant in the study conducted at MAMC with $\underline{r}=.44$ at the $p<.05$ level (See Table 5). Selecting the right projects for teams to pursue is a very important matter. If a poor project is selected, the team will become frustrated and ineffective (Berry 1991). A project is essentially a problem. A broader definition of a PAT project is an effort aimed at gaining a lasting breakthrough or revolutionary result that realizes a quantifiable improvement of a process, product or service (Ibid). A successful project is a form of evidence to the project team members that the improvement process does lead to useful results. That same success is also a source of stimulation to do more of the same.

Scholtes (1988) proposes some common, pivotal errors in selecting projects. The first error is to select a process that no one is really interested in or cares about. Studying a process is no simple task, and often the only motivation to sustain the effort is the commitment of team members (Ibid). Apathy towards a project will undoubtedly cause it to fail from inattention.

Pre-selecting a desired solution, instead of a process, is another decisive error. Sometimes managers will choose a solution to be studied rather than a process

because they think they already know what actions need to be taken to improve the process (Ibid). Instead of letting the team come up with their own solutions, they tell the team what the results should be. This seriously inhibits the team's creativity and freedom to explore as many alternatives as possible. The best chances for success can only come about when the team as a whole puts their minds together to discover the many possible solutions (Melan 1993).

A third error is to select a process in transition. Choosing a process that is or will be undergoing transition is a waste of resources (Scholtes 1988). For example, DHCS should avoid studying any pharmacy or laboratory processes until after the Composite Health Care System (CHCS) is in place because CHCS will fundamentally change the way these services operate.

Selecting a system to study, instead of a process can be another critical error. In their eagerness to gain improvements, managers often select projects that are too ambitious (Ibid). Instead of selecting a single process, they select an entire system that is composed of numerous processes. Establishing boundaries delineates the process space to be examined and facilitates a focus on a specific set of activities (Melan 1993).

A fundamental entity for ensuring projects are appropriate is the Quality Council (QC). A QC, or steering

committee, should be established to provide overall direction and to make policy decisions related to the quality-improvement process (Marszalek-Gaucher and Coffey 1990). The job of generating project ideas and choosing among them must be planned and managed in a fully developed quality improvement effort (Berwick, Godfrey, and Roessner 1990).

Many organizations have found that PATs should be carefully selected by management. If this is not done, problems arise when all proposed PATs are allowed to form on their own initiative (JCAHO 1992). In these cases, management may be unable to provide the resources needed to support the team or the resources necessary to implement a chosen solution (Ibid).

The QC can alleviate much of the problem by acting as the sole authority whereby PATs are chosen based upon organizational priorities. In mature quality management efforts, the QC is composed of managers and executives who are usually involved in making important strategic decisions for the organization (Berwick, Godfrey, and Roessner 1990). Therefore, the QC can ensure projects do not conflict with one another or with macro processes within the organization (JCAHO 1992). The QC must design and manage the process through which ideas for improvement projects are assembled and appropriate priorities set. The selection of projects for PATs is a very important matter that can impact upon the

entire organization; therefore, it is not surprising that it surfaced as a significant variable.

A commitment from upper management also displayed a significant positive correlation with PAT success ($r=.12$). Oyadomari (1993) also noted this variable demonstrated a correlation with PAT success in the MAMC study with $r=.38$ at the $p<.05$ level (See Table 5).

Demonstration of commitment from upper management is critically important. If it is lacking, many will view the total quality process as merely lip service (Marszalek-Gaucher and Coffey 1990). Employees cannot be fooled into thinking management is committed to making TQM work when they do not exhibit commitment (Johnson 1993). Employees witness the commitment to quality when and where it exists. When it does not exist, workers will not remain committed to the quality process for long (Ibid). The aim should be to have every PAT member know that management is extremely committed to the team and its goals. This takes on added importance because a lack of commitment to PATs on the part of upper management will undoubtedly lead to a lack of commitment to organizational TQM on the part of its employees. A lack of commitment to TQM in the DHCS would seriously thwart the attainment of strategic objectives.

Open dialogue among team members proved to be another crucial variable for PAT success ($r=.48$). Open dialogue among team members is essential because it serves to

transmit and receive ideas, concepts, vision, direction, requests, and orders among the team. Moreover, open dialogue among the team encourages the free expression of thoughts, empathy, and equality of participation (Johnson 1993). In order for open dialogue to exist, the team leader must enforce listening and effective communication so that everyone on the team can participate. Further, the team leader must ensure communication barriers are carefully avoided.

"Violating the "open dialogue" principle will stifle teams as fast as anything" (Berry 1991, p. 73). As the PAT is being instituted, people will expose problems management never knew existed. Members will do it with pride and enthusiasm. After all - this is what it's all about - exposing and fixing the problems that prevent customer satisfaction and the efficient operation of the organization. Open dialogue is absolutely vital for a PAT to be successful and for the TQM process to be effective.

Critical to PAT success is the need for diagnostic support. This variable also displayed a significant positive correlation with PAT success where $r=.02$. The mean for this variable was meager, registering a mere 3.35 on the seven point scale; with three equating to a "low amount" of diagnostic support received (see table 4). The standard deviation of 1.60 indicates that the spectrum of ratings for this item dips even further, with ratings falling into the

one to four range on the seven point scale. One translates to "extremely low amount" of diagnostic support received, while four translates to only a "moderate amount."

The need to make decisions based on accurate and timely data, not on wishes, hunches or experience, is vital to the prosperity of any PAT (Deming 1986). "In God we trust. All other must use data." (Ibid 1986, p. 403). PATs must make decisions based on facts. Facts are data such as the number of cesareans sections per month or the number of mammograms that the facility was not able to perform in a given time period. The work of diagnosis can become quite burdensome due to the need for extensive data collection and analysis. In such cases, the team may decide to request assistance from line or staff departments. For example, collection of admission data may be done by the Patient Administration Division. Views not backed by data are more likely to include personal opinion, exaggeration and mistaken impressions (Walton 1986).

Deming (1986) views diagnostic support, through the use of statistical methods, as essential to the transformation of American business. Only with the proper use of statistical methods can people minimize confusion in the presence of variation. Statistical methods help to understand processes, to bring them under control, and then to improve them. Otherwise, people will forever be "putting out fires" rather than improving the system (Ibid).

Diagnostic, or statistical, tools include: cause-and-effect diagrams, control charts, histograms, Pareto Charts, interrelationship digraphs, and run charts to name but a few. Diagnostic support, through the use of statistical tools, allows PATs to accurately define the process. Defining the process provides a means for both understanding and communicating operational details to the PAT. Defining the process also provides a baseline, or standard, for evaluating improvement. Through the use of diagnostic support, PAT members see glaring deficiencies such as redundant and needless steps and other non-value added activities (Melan 1993). PAT members may then begin to question the value of keeping these activities. Self-discovery often provides motivation to improve the process (Ibid). Diagnostic tools and support, therefore, are keys to understanding an operation and to providing a basis for improvement.

Physician involvement also exhibited a significant positive correlation with PAT success, with $r=.12$. Though physicians are party to almost every significant process in the health care organization, they are under represented on the teams reporting here. As noted in table 4, the mean for this variable was a little over three, which translates to a "low amount" of physician involvement on a PAT. In addition, this variable had the highest standard deviation (1.83) of the eight variables that displayed a significant

correlation with PAT success. Thus, the spectrum of ratings for this item was very broad with ratings falling into the one to five range on the seven point scale. One was "extremely low amount" of physician involvement, while five translates to a "high amount."

Though several projects did have a physician on their team, overall, physician involvement was minimal. It is difficult to involve physicians in PAT processes because they tend to be unavailable for work on teams, too busy to join, and, perhaps, too skeptical about their possible helpfulness (Berwick, Godfrey, and Roessner 1990).

An advantage unique to a military hospital is that "physicians come with the package" (JCAHO 1992). Because physicians are employed solely by the hospital, engaging physicians in PATs should not be difficult (Ibid). However, this is not always the case. The challenge of involving physicians in a PAT in a military health care facility is often equal to that in the civilian sector. Nevertheless, once involved in teams, physicians enjoy the quality improvement process as much as any participant (Berwick, Godfrey, and Roessner 1990). In order to get physicians involved with PATs, hospitals have adopted various methods for developing physicians' enthusiasm to participate on a PAT and in the TQM process in general. Table 5 offers a comparison of methods for encouraging physician participation on PATs between a military hospital, WPMC in

Dayton, Ohio, and a civilian hospital, Bethesda Hospital, Inc., Cincinnati, Ohio.

TABLE 6
A COMPARISON OF HOSPITAL METHODS FOR
MOTIVATING PHYSICIAN INVOLVEMENT IN PATS

WPMC	Bethesda Hospital Inc.
Emphasizing that PATs look at processes rather than individuals.	Emphasizing continuous improvement (medicine has a foundation in quality improvement).
Identifying physicians considered leaders within the hospital who would lead the roll out of PAT participation among the medical staff.	Variation. Physicians immediately see the application in nonclinical areas, e.g. inconsistency in stat labs. They refer to it as a "hassle reducer." Bethesda is also attempting to shift physician attitudes in practice variation, e.g. the medical staff is working on improving clinical results through TQM.
Emphasizing that TQM problem solving is a form of scientific method.	Emphasizing the customer (that is, patients as customers). "Customer" is a barrier word for physicians.
Illustrating how physicians are suppliers as well as customers (e.g. demonstrate through a flowchart how an illegibly signed record creates rework).	Teamwork. Understanding the complexity involved in the system of care (which is discovered through teamwork) is important in the learning process for physicians.
Demonstrating that TQM is a value-added activity, as opposes to the way they had practiced QA.	
Discovering a method to break through the language barrier that TQM produces (that is, TQM words sound like a foreign language to many physicians).	

Source: Joint Commission on the Accreditation of Healthcare Organizations, Striving Toward Improvement. Six Hospitals in Search of Quality (Oakbrook Terrace, IL: JCAHO, 1992).

WPMC is a United States Air Force Medical Center with a bed capacity of 301 and an average daily census of 220 (JCAHO 1992). WPMC is also a tertiary referral facility for DOD Region VI and is the Air Force's second largest hospital. Bethesda Hospital Inc. is a not-for-profit

community hospital with a bed capacity of 701 and an average daily census of 502 (Ibid).

WPMC's strategy was to engage the medical staff in the TQM process from the beginning. Most PATs included physicians and, as heads of medical departments, physicians served to drive the roll out of TQM throughout the organizations (Ibid).

Bethesda also involved physicians in the initial stages of implementing TQM through the Medical Staff Advisory Group. The Medical Staff Advisory Group received extensive training in TQM concepts and tools, and selected projects to pilot test TQM in medicine. Initially, Bethesda physicians participated on teams addressing administrative issues in areas of interest to them, such as waiting times in the operating room or emergency department. Improvements in these areas demonstrated the value of TQM methods to the physicians (Ibid). Bethesda then attempted to reduce clinical practice variation among physicians through the use of TQM and piloted studies in total hip and knee replacement as well as cesarean sections (Ibid).

Physician participation is vital to the success of PATs in health care because of the unique function they serve (Marszalek-Gaucher and Coffey 1990). Consequently, no TQM program can be effective in a health care setting without the indispensable participation of physicians.

Regular meetings of a PAT also displayed a significant correlation with PAT success with $r=.02$. Ishikawa (1985) notes there must be a continuity of meetings in order for the PAT to be effective. In this study, the mean for regular meetings was 4.39 which translates to "neither irregular nor regular" meetings. The standard deviation for this variable was 1.51 which broadens the spectrum of ratings from two, "very irregular," to five which equates to "regular" on the seven point scale. This result indicates an opportunity for improvement for PAT success within the DHCS.

Berry (1991) asserts that in most cases, PATs should meet for at least an hour each week, and members may do a little work between meetings. Moreover, if there is a particularly urgent project being tackled, the team may need to work full time or at least several hours per week, until the problem is resolved (Ibid). The key point is that the project should dictate how frequently a team should meet and how long it should stay in place.

Berwick, Godfrey, and Roessner (1990) recommend that PATs meet every week or every other week for several months until the project is completed. Moreover, a team should meet regularly, according to the nature and urgency of the project (Ibid). Regular meetings allow PAT members to stay focused on the problem and eliminates the need to "reacquaint" the PAT with the issue each time it meets.

It is necessary for the PAT to meet regularly to bring the project to a timely and successful conclusion. A completed project is a form of evidence to the team and to the entire organization that the TQM process works (Juran 1988). If teams do not meet regularly, members may feel that they are just "spinning their wheels." This, in turn, may lead to discouragement and reduced confidence in the organization's direction. Such discouragement and reduced confidence also becomes publicized and thereby could have an impact on the entire organization (Ibid). Therefore, regular meetings are fundamental to the success of a PAT and the DHCS's TQM program.

The last variable which displayed a significant correlation with PAT success was the success of the team leader with $r=.22$. Berry (1991) notes that teams should have a designated team leader who is trained both in the QI problem-solving process and in group leadership skills. A well-trained team leader who possesses excellent communication skills and motivational abilities is a vital element to success. Further, the leader and team must be problem-oriented instead of personality-oriented.

Johnson (1993) notes that several leadership-based requirements are found to exist within successful PAT leaders. The first of these requirements is the trait of visionary leadership (Ibid). The team leader provides a quality vision for the team. Team members must know the

mutual benefits of a quality operation. This includes where the team plans to go; the commitment level of team members, team leaders, and the organization; and the potential for reward when they reach that target.

The second requirement for team leaders is a participative or delegative leadership style (Ibid). Leaders must exhibit the willingness to share equal idea input with an agreement to let everyone accept a level of responsibility for team output. Where possible, individuals or subgroups are delegated portions of the effort (Ibid).

The third requirement is a positive, supportive environment (Ibid). The working environment must be one of mutual trust and support built with open communications up and down the chain. Leadership builds the supportive atmosphere through agreement, understanding, and cooperation. Every effort is made to reduce or eliminate conflict. Training supports every aspect of TQM, and there is a shared time consciousness that endeavors to get today's work out today (Ibid).

Other requirements include: interdependence, performance requires team members to work together for an end product (no one has all the required skills to finish the product); energy, the leader must exhibit energy and a willingness to work well beyond minimum expectations; commitment, the leader and every other team member must be committed to performance improvement; and responsibility,

the leader never forgets who is ultimately responsible for the team's success (Ibid). Moreover, Johnson (1993) notes that the team leader must have a high stake in the final outcome. The leader must have some stake in the process and any benefits gained, or they seldom put forth the additional energy necessary for performance improvement (Ibid).

Often, PAT leaders follow organizational lines. In this case, the section manager and team leader are the same person. This is valuable because this person has the most to gain or lose with the team. This, in turn, provides emphasis on success for the PAT. An effective team leader following a proven problem-solving process, working with people who know the territory and care about it, is a winning combination (Berry 1991).

CHAPTER 5

CONCLUSION

The findings of this study suggest that PAT success in the DHCS is a function of eight specific variables. These variables are: a team member serving in an administrative position, the selection of an appropriate project by the team, a commitment from upper management, open dialogue among team members, diagnostic support for the team, physician involvement, regular meetings, and the success of the team leader. The statistical significance of these eight variables in no way suggests leaders should ignore the other eleven variables identified in the literature. Effective team problem solving based on scientific methods and data analysis is key to the success of any TQM program (Sahney, Higgins, and Warden 1995).

The results of this study are clearly relevant for future PATs in the DHCS. By focusing on these eight variables, the DHCS should be able to increase the effectiveness and success of its PATs. This is extremely important information as TRICARE is being implemented throughout the National Capital Region and resources are becoming scarce throughout the Army Medical Department

(AMEDD). Resources should not be poured into areas that have no bearing on PAT success. The results of this study identified areas that warrant attention as well as dedicated resources if PATs are to succeed. Substantial gains in quality and productivity within the DHCS can result from the efficient and effective use of PATs. This is where the real utility of this study lies.

The major implication of this study is that manipulation of the eight variables can effect positive outcomes for DHCS PATs. This knowledge is particularly useful for the Quality Management Board (QMB), the Executive Committee, and others who have the power and authority to implement the changes required to improve PAT success.

If DHCS effectively used PATs, the teams' work could be coordinated to focus efforts on strategic priorities thereby assisting the organization in realizing its vision: "to become the health care system of choice for all Department of Defense beneficiaries in Northern Virginia." This, in turn, could enhance the ability of DHCS' to remain competitive in the National Capital Region.

Cutting costs while improving access and quality will become vital to the future success of DHCS. Under TQM, PATs can be a valuable tool to facilitate this because they challenge every system, process, service, and product so that quality is built in from the beginning. Planning for quality reduces costs and improves the quality of care

(Plsek 1995). Donabedian (1980) sums up why PATs are necessary: "This is as it should be, for in the pursuit of quality no one is an island."

Lastly, JCAHO's "Agenda for Change" is radically altering the method by which health care organizations' "efforts to continuously improve quality," rather than "the capability to produce quality" are judged. The establishment of clinical and organizational indicators will be required to verify quality improvement movements within the organization. Documentation of ongoing quality improvement efforts will be necessary. PATs can go a long way to meeting this requirement. Hence, the results of this study can become vitally important to health care organizations who are trying to make effective use of PATs/TQM. This study provides an understanding of what factors are necessary for PAT success and allows health care organizations, at the very least, to understand that the only way to successfully meet the challenges facing health care in the 1990s is to start learning how to go about TQM (Mozena and Anderson 1993).

Recommendations

There are several recommendations that arise from this study. As mentioned, one of the eight significant variables identified in this study was the selection of an appropriate project by the PAT. In the DHCS, the entity in charge of

chartering PATs is the QMB. The QMB should select projects based on their importance to the hospital and charter all teams with specific missions. All solutions and recommendations should go through the QMB for approval. The QMB is an essential control mechanism that minimizes wasted resources, rework, conflict, and frustration or floundering on the part of the team members (Marszalek-Gaucher and Coffey 1990).

In addition, by selecting appropriate projects and chartering PATs, management can focus efforts on organizational priorities and ensure teams do not conflict with macro processes. Through this process, management will also be able to provide the needed resources to teams (i.e., education, diagnostic support, facilitators) and to support the implementation of the solution.

Nonetheless, unchartered teams may still be initiated by staff to explore issues within their areas of responsibility. Unchartered teams usually address intra departmental issues or those that are limited in scope (JCAHO 1992).

A major challenge will continue to be the involvement of physicians in the TQM process (Baskin and Shortell 1995). Lack of physician involvement results from a variety of causes: extensive time requirements, the belief that TQM is another management fad, and physician confidence in their sole ability to affect patient care (Ibid).

Given this information, a second recommendation is to incorporate TQM training into the Family Practice Residency Program at DHCS. By incorporating TQM training into the program, physicians will become more familiar with TQM ideas and processes. This may help alleviate the lack of physician involvement on PATs and further standardize clinical and administrative processes. By assimilating TQM into the residency program, physicians will see quality improvement and quality management as an over-riding philosophy--a framework within which to manage and lead, rather than a small shift in direction. Residency programs have an opportunity to develop learning experiences for physicians to prepare them with up-to-date knowledge and the skills necessary to implement TQM and practice quality management (Gelmon and Baker 1995).

In conjunction with the second recommendation, a third recommendation is to involve the Medical Staff Committee (MSC) in the TQM process. The MSC could play a leadership role in encouraging physician participation on PATs and in the TQM process itself. The MSC's challenge will be to increase the acceptance of TQM by expanding the knowledge base of the medical staff and capitalizing on a physician's scientific training and continued desire to learn.

Another recommendation is to encourage physician involvement in PATs by identifying interested individuals to serve as champions for other physicians. This approach

would provide a role model to encourage more widespread physician involvement. Physician interest may be enhanced when they realize PAT participation can focus on problems relevant to them, such as waiting times in the operating room or in the emergency department. Moreover, by emphasizing to physicians that PATs focus on systems improvement rather than individuals (bad apples), and use a scientific process which uses sound data, physicians may be more inclined to participate. Further, PAT participation can also help physicians understand how they fit into the customer-supplier chain within the DHCS.

Lastly, the language of TQM may be foreign to physicians initially. DHCS' TQM Office could develop special training methods to translate these concepts into familiar terms and meet the other unique needs of physicians.

A fifth recommendation resulting from this study is to increase the amount of diagnostic support provided to PATs. Studies, such as The National Demonstration Project on Quality Improvement in Health Care, have shown that the concepts and tools of industrial quality improvement can be used to improve the quality processes in the health care industry (Berwick, Godfrey, and Roessner 1990). Process flow diagrams, Pareto Charts, cause-and-effect diagrams, histograms, control charts, and so on--the familiar tools of

industrial quality improvement--were successfully applied to a wide variety of health care processes (Ibid).

Many people balk at the word statistics, or they experience feelings of anxiety similar to those generated by changes in the tax laws. However, statistical, or diagnostic, tools are not as complicated as they sound. A little training is all it takes for most applications, and much of it can be done on a personal computer (Berry 1991). Many people also believe that diagnostic tools apply only to manufacturing. This is one of the most common misconceptions (Ibid). Statistical tools apply just as well to health care as they do to the service and manufacturing industries (Ibid). In health care, for example, instead of working to improve material variations, one works to adjust process variation, such as reducing the time it takes to issue an appointment, a medical card, or a policy.

In order to increase the amount of diagnostic support, more individuals must be trained in the use of statistical tools. Deming (1986) recommends searching the ranks for people with a considerable amount of statistical knowledge and talent. These people may include nurses or health care administrators, as well as physicians. Such people, taught and nurtured under competent guidance, may be able to take on the training of other people (Ibid).

The final recommendation of this study is to use the Malcolm Baldrige National Quality Award Framework to

conduct an internal assessment of DHCS' TQM program. Significant benefits can be reaped by going through the process of preparing the application. The experience of preparing for the review will enlighten management about what still needs to be done to fully develop DHCS's TQM process. Going through the exercise of completing the award application will be a helpful and revealing experience and will serve to point out deficiencies in the TQM process.

LIMITATIONS

There are several limitations in the study design that limit generalizing the findings. First, the PATs studied were not chosen randomly but were selected based on their inclusion in the formalized record keeping system in the TQM Office or in department heads' offices. Although it is felt these teams represent the full mix of teams operating in the DHCS, there may be some bias, of which I am unaware, in their composition. Second, the focus of the study was on the DHCS, which is a one-of-a-kind health care system in the United States Army. The operation of such teams may not be relevant to teams working in other health care sectors, such as private sector hospitals and health care systems or long-term care facilities. The study may be of assistance, however, in military community hospitals of similar size and composition. Third, this study investigated only team members' perceptions of PAT success and not the actual

performance of the teams. Teams may produce effective outcomes even though their functioning is assessed as poor by team members. To investigate this issue, future research should focus on the relationship between team member's perception of success and objective measures of PAT performance, such as productivity or patient outcomes. Lastly, the survey did not differentiate among officers and enlisted in the military but rather asked if one was in the military. It is important for future surveys to make this distinction as different ranks, or categories of membership, may have significantly different impressions of PAT/TQM success.

TQM will increase in importance as new reimbursement policies and future accreditation hinge on a health care organization's risk-adjusted outcomes (Baskin and Shortell 1995). Outcomes measurements and costs of procedures are the basis on which insurers are increasingly negotiating provider contracts. Continuation of this trend, coupled with the move toward more capitated arrangements, may lead to differential pricing strategies based on a provider's efficiency and outcomes.

One might conclude that survivors of organizational consolidation must use quality initiatives to their advantage. The flexibility of a "quality" organization will be necessary to continually implement changing treatment protocols. Health care organizations are caught between the

internal and external pushes for increased demand for clinical accountability, quality documentation, cost savings, and increased productivity. Many look to TQM as the tool that will reconcile these factors.

"TQM still remains the basic underpinning of everything we are trying to accomplish" (LaNoue 1996, p. 3). In the final analysis, PATs can ultimately impede or destroy DHCS' efforts to implement TQM. Moreover, PATs must succeed in the DHCS if we are to reach our strategic vision of "becoming the health care system of choice for Department of Defense beneficiaries in Northern Virginia."

This study has identified eight variables which affect PAT success. It is hoped that action will now be taken to follow through on these results and ensure these variables become established guidelines for all future PATs in the DHCS.

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APPENDIX 1

Abbreviations

AMEDD	Army Medical Department
CQI	Continuous Quality Improvement
DHCS	DeWitt Health Care System
DOD	Department of Defense
FOCUS-PDCA	Find a problem Organize a team Clarify the process Understand the process variance Select an improvement Plan Do Check Act
JCAHO	Joint Commission on the Accreditation of Health Care Organizations
MAMC	Madigan Army Medical Center
MSC	Medical Staff Committee
PAT	Process Action Team
QA	Quality Assurance
QC	Quality Council
QI	Quality Improvement
QMB	Quality Management Board
TQM	Total Quality Management
WPMC	Wright Patterson Medical Center

APPENDIX 2

Survey Instrument

Process Action Team (PAT) Survey

Section I: Background Data

For the following questions, check the one that applies to you, and fill in the appropriate number of years.

1. Are you in the military?

_____ Yes
_____ No

2. Age: _____ years

3. Education level

_____ High School degree
_____ Bachelors' degree
_____ Some graduate work
_____ Master's degree
_____ Doctorate degree

4. Gender

_____ Male
_____ Female

5. Are you in a managerial or supervisory position?

_____ Yes
_____ No

6. Occupation

_____ Physician
_____ Nursing
_____ Administration
_____ Other professional
_____ Other paraprofessional

7. How long have you been an employee in the DeWitt Health Care System? _____ years (Note: For less than 6 months, put 0 year; for 6 months or more, put 1 year)

APPENDIX 2 (continued)

Survey Instrument

8. How would you rate your experience/knowledge level of TQM? (Check one)

- ☐ Extremely low
- ☐ Very low
- ☐ Low
- ☐ Moderate
- ☐ High
- ☐ Very high
- ☐ Extremely high

9. How successful do you believe your PAT was in accomplishing its mission? (Check one)

- ☐ Extremely unsuccessful
- ☐ Very unsuccessful
- ☐ Unsuccessful
- ☐ Neither unsuccessful nor successful
- ☐ Successful
- ☐ Very successful
- ☐ Extremely successful

Survey Instrument Section II: PAT Data

For the following questions, check the most appropriate answer.

1. How committed was upper management to your PAT and its goals?

- ☐ Extremely noncommittal
- ☐ Very noncommittal
- ☐ Noncommittal
- ☐ Neither noncommitted nor committed
- ☐ Committed
- ☐ Very committed
- ☐ Extremely committed

2. How much education did you receive on TQM and TQM tools before or during your time as a PAT member?

- ☐ Extremely low amount
- ☐ Very low amount
- ☐ Low amount
- ☐ Moderate amount
- ☐ High amount
- ☐ Very high amount
- ☐ Extremely high amount

3. Did your team utilize a trained facilitator?

- ☐ Yes
- ☐ No

APPENDIX 2 (continued)

Survey Instrument

4. If you answered "Yes" to #3, how much do you believe the facilitator contributed to the success of your PAT?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

5. Did your PAT have a team leader?

- _____ Yes
- _____ No

6. If you answered "Yes" to #5, how much do you believe the team leader contributed to the success of your PAT?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

7. Did your team have more than 12 members?

- _____ Yes
- _____ No

8. Was your team a cross-functional team (e.g. composed of members from different departments and services)?

- _____ Yes
- _____ No

9. Was there a visible presence of top organizational leaders (Commander, Deputy Commander for Administration, Deputy Commander for Nursing, Deputy Commander for Primary/Managed Care, and the Command Sergeant Major) in a regular role?

- _____ Yes
- _____ No

10. How regular were your meetings?

- _____ Extremely irregular
- _____ Very irregular
- _____ Irregular
- _____ Neither irregular nor regular
- _____ Regular
- _____ Very regular
- _____ Extremely regular

APPENDIX 2 (continued)

Survey Instrument

11. How open was the dialogue among team members?
_____ Extremely closed
_____ Very closed
_____ Closed
_____ Neither closed nor open
_____ Open
_____ Very open
_____ Extremely open
12. How much ownership did you have in the process being studied?
_____ Extremely low amount
_____ Very low amount
_____ Low amount
_____ Moderate amount
_____ High amount
_____ Very high amount
_____ Extremely high amount
13. How high was your stake in finding the right solution?
_____ Extremely low
_____ Very low
_____ Low amount
_____ Moderate
_____ High
_____ Very high
_____ Extremely high
14. Did your PAT use a structured problem solving process?
_____ Yes
_____ No
15. How appropriate was the project you were assigned to solve?
_____ Extremely inappropriate
_____ Very inappropriate
_____ Inappropriate
_____ Neither inappropriate nor appropriate
_____ Appropriate
_____ Very appropriate
_____ Extremely appropriate
16. How much diagnostic support (e.g. data gathering, data analysis, information support) did your team receive?
_____ Extremely low amount
_____ Very low amount
_____ Low amount
_____ Moderate amount
_____ High amount
_____ Very high amount
_____ Extremely high amount

APPENDIX 2 (continued)

Survey Instrument

17. How much celebration and or/recognition did your team receive?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

18. How much financial support did you receive to pursue your project and implement the solution?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

19. How much did management interfere with your team and its efforts?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

20. How much were others in the organization informed as to the progress and future direction of your PAT?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

21. How much physician involvement occurred on your team?

- _____ Extremely low amount
- _____ Very low amount
- _____ Low amount
- _____ Moderate amount
- _____ High amount
- _____ Very high amount
- _____ Extremely high amount

APPENDIX 3

Cover Letter for Survey

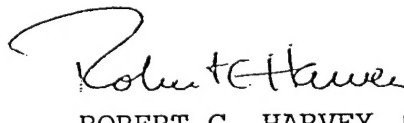
MCXA-CDR

7 February 1996

MEMORANDUM FOR Survey Participants

SUBJECT: Survey of Process Action Team Members

1. As part of our vision to become the health care system of choice in Northern Virginia, DeWitt Health Care System has adopted a total quality management (TQM) philosophy. A key component of our TQM program is the use of Process Action Teams (PATs). The attached survey is designed to provide feedback on how PAT members perceive the support they are receiving and how successful overall PATs are in the command. The findings of this study will be used to determine where resources need to be allocated to support PATs and to identify areas that warrant attention and provide opportunities for improvement.
2. I encourage your honest and thoughtful response to the survey. Only a small number of staff members have received the survey, so each person's input really counts. All responses will be kept anonymous. This study is the thesis project of the Administrative Resident, CPT Lozis, in fulfillment of a Master's Degree in Health Care Administration. Please complete the survey and return it to CPT Lozis, Room A117 (Headquarters Wing), by 23 February 1996.
3. The key to our success lies in our people, the staff members of Dewitt Health Care System. Thank-you for contributing to our ongoing quality improvement process.
4. Point of contact is CPT Lozis at 805-0881 or dlozis on the LAN.


ROBERT C. HARVEY
COL, MC
Commanding